

NOVEMBER/DECEMBER 2024

**23PMB33 — FERMENTATION
TECHNOLOGY AND PHARMACEUTICAL
MICROBIOLOGY**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are bioprocesses?
2. Name two industrially important microorganisms.
3. What is a fermenter?
4. What is heat production in a fermenter?
5. What is solvent extraction?
6. Define intracellular and extracellular products.
7. What is pharmaceutical microbiology?
8. Name one common method for controlling contamination in sterile manufacturing units.
9. Define immunodiagnostics.
10. What is streptokinase used for?



SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Explain the importance of inoculum development in the fermentation process.

Or

- (b) Describe the role of aerobic fermentation in bioprocessing.

12. (a) Compare and contrast different types of fermenters.

Or

- (b) Explain the role of computer applications in optimizing fermentation processes.

13. (a) Describe the physical, chemical, and enzymatic methods for cell disintegration, providing examples of each.

Or

- (b) Explain the importance of drying and crystallization in the final stages of downstream processing.

14. (a) Describe the role of building materials and equipment in controlling microbial contamination.

Or

- (b) Explain the design considerations for a sterile manufacturing unit, focusing on layout and airflow.

15. (a) Describe the process and importance of sterility tests in the production of pharmaceutical products.

Or

- (b) Explain the significance of immuno-sera in therapeutic applications.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the various techniques used for the improvement of industrially important strains of microorganisms.

17. Evaluate the design and construction aspects of a fermenter, including materials, scalability, and sanitation.

18. Analyze the different methods of cell disintegration, highlighting the advantages and challenges of each approach.

19. Discuss the design and layout considerations for a sterile manufacturing unit, including airflow, personnel flow, and equipment placement.

20. Examine the therapeutic uses and production challenges of antibiotics like metronidazole, including quality assurance protocols.

